



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

# SCIENCE

FRIDAY, MARCH 3, 1911

## CONTENTS

<i>University Registration Statistics:</i> PROFESSOR RUDOLF TOMBO, JR.	317
<i>Summary of the Fifth Annual Report of the Carnegie Foundation</i>	323
<i>The Public Health Service</i>	324
<i>Scientific Notes and News</i>	324
<i>University and Educational News</i>	325
<i>Discussion and Correspondence:—</i>	
<i>The Air we breathe in Buildings:</i> DR. LUTHER H. GULICK. "Mutations" of Waagen and "Mutations" of de Vries or "Rectigradations" of Osborn: DR. HENRY FAIRFIELD OSBORN	326
<i>Scientific Books:—</i>	
<i>Davenport on Inheritance of Characteristics in Domestic Fowl:</i> DR. RAYMOND PEARL. <i>Ganong's The Teaching Botanist:</i> PROFESSOR FRANCIS ERNEST LLOYD. <i>Erdmann's Lehrbuch der anorganischen Chemie:</i> PROFESSOR E. RENOUE. <i>Folwell on Sewage:</i> DR. GEO. W. FULLER	328
<i>Scientific Journals and Articles</i>	334
<i>The Fifth Annual Report of the President of the Carnegie Foundation:</i> PROFESSOR J. MCKEEN CATTELL	334
<i>Special Articles:—</i>	
<i>The Type of Columbina spix:</i> DR. J. A. ALLEN. <i>Another Sex-limited Character in Fowls:</i> A. H. STUETEVANT	336
<i>The Forty-third General Meeting of the American Chemical Society and Section C:</i> DR. B. E. CURRY	338
<i>The Chicago Academy of Sciences:</i> WALLACE W. ATWOOD	352
<i>Societies and Academies:</i>	
<i>The Philosophical Society of Washington:</i> R. L. FARIS. <i>The Geological Society of Washington:</i> ROBERT ANDERSON. <i>The Torrey Botanical Club:</i> SERENO STETSON. <i>The New York Section of the American Chemical Society:</i> C. M. JOYCE	353

MSS. intended for publication and books, etc., intended for review should be sent to the Editor of SCIENCE, Garrison-on-Hudson, N. Y.

## UNIVERSITY REGISTRATION STATISTICS

THE registration returns for November 1, 1910, of twenty-seven of the leading universities of the country will be found tabulated on the following page. Four institutions exhibit a decrease in the grand total enrollment this year, viz., Harvard, Iowa, Indiana and Virginia, as against four institutions in 1909, two in 1908 and five in 1907. The largest gains in terms of student units, including the summer session attendance, but deducting summer students who returned for work in the fall, were registered by Columbia (with an unprecedented increase of 1,279 students), California (674), Minnesota (621), Wisconsin (500), Chicago (396), Northwestern (346) and Pennsylvania (330). Last year there were also seven institutions that showed a gain of over three hundred students each, but only one (Columbia) that registered an increase of over four hundred students. Omitting the summer session attendance, the largest gains have been made by Columbia (796), Minnesota (621), California (496), Wisconsin (407), Northwestern (379), Nebraska (236) and Chicago (231), seven universities exhibiting an increase of over two hundred students in the fall attendance, as against eleven last year, and it will also be observed that only one of the seven is an eastern institution, whereas the eleven last year were fairly evenly divided between the east and the west.

According to the figures for 1909, the twenty-eight universities included in the table ranked as follows: Columbia, Harvard, Chicago, Michigan, Cornell, Pennsylvania, Illinois, Minnesota, Wisconsin,

Faculties, November 1, 1910		Yale	Wisconsin	Western Reserve	Virginia	Tulane	Syracuse	Pennsylvania	Princeton	Stanford	Texas	Truman	Western Reserve	Wisconsin	
College Men.....		729	22,086	397	541	482	190	539	705	517	352	418	400	434	405
College Women.....		688	521	261	487	475	373	486	920	448	518	366	1118	338	916
Scientific Schools <sup>a</sup> .....		780	713	1576	121	1067	176	404	562	594	206	54	303	785	1226
Law.....		139	192	365	267	794	146	204	740	367	212	240	166	140	829
Medicine.....		91	141	316	169	759	514	186	154	395	47	495	477	178	168
Non-Professional Grad. Sch. ....		371	445	1167	288	456	269	139	101	200	66	135	54	291	140
Agriculture.....		230	206	155	133	709	44	629	122	342	411	65	397	130	166
Architecture.....		—	—	—	—	—	—	—	—	—	—	—	—	—	48
Art.....		—	—	—	—	—	—	—	—	—	—	—	—	—	—
Commerce.....		241	—	—	—	—	—	—	—	—	—	—	—	—	46
Dentistry.....		59	—	167	—	117	140	—	—	—	—	—	—	—	—
Divinity.....		—	—	—	—	—	—	—	—	—	—	—	—	—	—
Forestry.....		—	—	—	—	—	—	—	—	—	—	—	—	—	—
Journalism.....		—	—	—	—	—	—	—	—	—	—	—	—	—	—
Music.....		—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pedagogy.....		—	—	228	1406	21	53	45	134	134	14	55	161	25	55
Pharmacy.....		85	—	283	104	160	—	—	—	—	—	—	—	—	—
Veterinary Medicine.....		—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Courses.....		575	—	230	160	371	39	47	103	1	183	109	51	109	107
<i>Deduct Double Registration.....</i>		—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total.....	30355	5446	4582	4588	4529	1299	1754	784	2020	4651	4657	2269	3357	3150	1855
Summer Session 1910.....	1051	3270	987	973	665	1137	345	345	930	1226	457	897	444	76	638
<i>Deduct Double Registration.....</i>	245	622	667	400	132	355	304	142	164	142	140	140	140	140	140
Grand Total 1910.....	4758	5883	7411	5169	5329	4659	2132	1987	784	2246	5389	4972	2678	3661	1545
" " 1909.....	4034	5487	6132	5028	5556	4502	2231	2246	710	2144	5259	4551	2589	3402	1548
" " 1908.....	3751	5114	5675	4700	5342	4170	2113	2356	698	2036	5188	4607	2558	3154	1548
" " 1907.....	3346	4594	5197	4293	5346	4177	1667	2158	651	1832	4953	4207	2274	3434	1548
" " 1906.....	3246	4793	5342	4075	5310	1515	1930	618	1630	4674	3894	3340	2180	3283	1548
" " 1905.....	3651	4557	4755	3871	5233	3635	1377	1700	688	1706	4521	3340	1887	2635	1548
" " 1904.....	3738	4035	4333	3883	5392	3369	1206	1460	740	1446	4000	3886	1704	2380	1548
Extension and Similar Courses.....	3630	4146	4557	3488	6013	3239	1614	1260	694	1319	3926	3550	1540	2513	1548
Officers.....	349	334	302	2800	1636	7	650	650	618	582	100	175	198	148	140

\* Includes schools of mines, engineering, chemistry and related subjects.

<sup>a</sup> Included elsewhere.

<sup>b</sup> No figures furnished.

Note.—The Texas and Tulane figures for 1903-1908 are exclusive of the summer session.

California, New York University, Nebraska, Yale, Syracuse, Northwestern, Ohio State, Missouri, Texas, Iowa, Indiana, Kansas, Tulane, Stanford, Princeton, Western Reserve, Washington, Virginia, Johns Hopkins. Comparing this with the order for 1910, we note that Chicago and Michigan have passed Harvard, that Pennsylvania has changed places with Cornell, that Illinois has been passed by Minnesota, California and Wisconsin, that California and Wisconsin have changed places, that Northwestern has passed Yale and Syracuse, that Kansas has outstripped Iowa and Indiana, as Tulane and Indiana have Iowa, and, finally, that Johns Hopkins and Virginia have changed places. For the first time in the annals of American universities the seven thousand mark has been passed, Columbia having a grand total registration this year of 7,411 students, a figure that will closely approach the eight-thousand mark before the end of the academic year. Pennsylvania is the sixth institution to pass the five-thousand mark; Cornell passed it in 1909, Chicago and Michigan in 1908, Columbia in 1907 and Harvard somewhat earlier. If the summer session enrollment be omitted, the universities in the table rank in size as follows: Columbia, Minnesota, Michigan, Pennsylvania, Harvard, Cornell, Illinois, California, Wisconsin, New York, Northwestern, Nebraska, Yale, Syracuse, Chicago, Ohio State, Missouri, Kansas, Texas, Iowa, Stanford, Princeton, Indiana, Western Reserve, Tulane, Johns Hopkins, Virginia, this order also showing a number of changes as compared with 1909, notably the advancement of Minnesota from seventh to second place.

Examining the various faculties in order, we find that the usual gains in the male undergraduate academic departments continue, the total increase being one of

approximately a thousand students; it is impossible to calculate the increase with absolute accuracy, owing to constant changes of classification. On the other hand, it is noteworthy that the number of undergraduate women shows a decrease at the majority of the institutions in the list—quite an unusual condition. Harvard continues to lead in the number of male academic students, being followed by Michigan, Yale, Princeton, Wisconsin, Chicago, Columbia, Cornell, Minnesota; including the women, the order is Harvard, Michigan, California, Wisconsin, Minnesota, Chicago, Syracuse, Columbia, Yale, Princeton, Texas and Kansas, each of these institutions enrolling over one thousand academic students.

The number of scientific students is considerably smaller than it was last year, more than half of the institutions showing a loss compared with 1909. The chief gains were made by Illinois, Yale and Columbia, in the order given. The institutions that attract over five hundred students to their engineering schools are Cornell, which continues to maintain its old lead in this field, Michigan, Illinois, Yale, Wisconsin, Pennsylvania, Ohio State, California, Columbia, Minnesota, Missouri and Nebraska, in the order named, the first four universities mentioned enrolling over one thousand students each.

As was the case last year, there has been a decrease in the number both of medical and law students, this being due in the majority of the instances to a raising of the requirements for entrance to these professional schools. The largest gains in medicine have been registered by Western Reserve, California and Johns Hopkins, in law by Stanford, Columbia and Harvard; the largest losses in the former have been experienced by Northwestern, Pennsylvania and Iowa, in the latter by Virginia,

Yale and Texas. Illinois now attracts the largest number of medical students, followed by New York University, Northwestern, Pennsylvania, Tulane, Johns Hopkins, Michigan and Columbia, each of these institutions enrolling more than three hundred students. In law, Harvard and Michigan have passed New York University, these being followed by Minnesota, Columbia and Pennsylvania, the six institutions mentioned being the only ones in the table to attract over three hundred students.

Sixty per cent. of the graduate schools show an increase over last year's enrollment, and where losses are registered, they are slight. Columbia, Stanford and Illinois exhibit the largest gains, the first named institution, with an enrollment of 1,167 non-professional graduate students, having more than twice as many as the next largest, Harvard (456), which is followed in turn by Chicago, Yale, Pennsylvania, California, New York, Cornell, Illinois and Wisconsin, each of these institutions enrolling more than two hundred students. Over two thirds of the students enrolled in these eleven universities are to be found in eastern institutions.

All of the schools of agriculture continue to show a highly encouraging increase, Minnesota remaining at the head of the list, while Cornell has passed Illinois.—Of the architectural schools Cornell and Syracuse show slight losses, the others having registered an increase, especially Illinois and Columbia. The four largest schools are Illinois, Pennsylvania, Columbia and Cornell, in the order named, the two latter having changed places since the last year.—The largest schools of commerce are those of New York University, Pennsylvania and Northwestern, and all of these show very considerable gains in attendance over last year. Wisconsin and

California have also increased their enrollment in this field, while Illinois and the Harvard graduate school of business administration have remained stationary. With the exception of Iowa and Tulane, all of the dental schools have increased their attendance, Northwestern, Illinois and Harvard showing the largest gains. The institutions continue to rank in the order Pennsylvania, Northwestern, Michigan, Minnesota, in this department.—Of the four divinity schools, Harvard alone shows a gain, the order in point of size being Northwestern, Chicago, Yale, Harvard.—At all of the institutions where the students of forestry are listed separately, a gain is apparent.—In the department of music, half of the institutions show a decrease in the number of students, this being especially large in the case of Northwestern and Wisconsin. Syracuse, Nebraska and Northwestern continue to have the largest schools.—In the department of pedagogy Minnesota, Missouri and New York University have suffered losses in attendance, while the other universities registered gains, especially the Teachers College of Columbia University, which exhibits an increase of no less than 432 students, it being by far the largest school of education in the country. It is followed by New York University, Chicago and Missouri, in the order named.—There has been a slight gain in the total number of students of pharmacy, the largest decrease having been experienced by Northwestern, the largest increase by Western Reserve, the other institutions being about evenly divided in the matter of gains and losses. The three largest schools continue to be Columbia, Northwestern and Illinois.—Ohio State, which has the largest school of veterinary medicine, has registered a loss of 21 students, Pennsylvania, which comes next, has

remained stationary, and Cornell and New York University have made slight gains.

The summer sessions are enjoying continued prosperity, especially noteworthy gains having been experienced by Columbia (664), Pennsylvania (240), California (232) and Tulane (184), while Harvard registered a decrease of 504 students. The only other decrease of moment was experienced by Northwestern, where the summer session in medicine has been abandoned; Iowa, New York University, Syracuse and Texas show slight losses, while Indiana, Michigan, Minnesota, Ohio and Stanford have remained practically stationary. Chicago continues to assemble the greatest number of summer students in its summer quarter, Columbia's summer session is rapidly nearing the three-thousand mark, while Wisconsin, Michigan, Indiana and California have over a thousand students each. Then come Cornell, Tulane, Harvard, Pennsylvania and Illinois, in the order named.

Of the New England colleges for men included in the following table, Dartmouth, Tufts, Wesleyan and Williams show gains over last year, Amherst and Bowdoin losses. Brown also shows a loss, as do Bryn Mawr and Mt. Holyoke, while Smith, Vassar and Wellesley have more students than last year. Massachusetts Institute of Technology, Lafayette and Oberlin have gained, Haverford, Lehigh and Purdue lost.—At Amherst the introduction of a group system of electives, as well as the inauguration of a one-half-year rule in public exhibitions, may have had some effect on the diminution in size of the entering class.—At Brown 657 of the college students are men, 199 women, and there are 74 graduate students enrolled.—At Bryn Mawr there are 69 graduate students. During the year 1909–10 this college received gifts amounting to \$694,000.

Institution	1910	1909	1908	1904
Amherst .....	502	526	528	412
Bowdoin (incl. med.) ..	398	419	420	363
Brown (incl. graduate school) .....	930	974	993	988
Bryn Mawr (incl. graduate school) .....	409	412	393	441
Dartmouth (incl. eng., med., grad. stud. and commerce) .....	1,229	1,197	1,233	926
Haverford .....	150	157	160	146
Lafayette .....	496	468	455	422
Lehigh .....	616	667	662	609
Massachusetts Institute of Technology .....	1,506	1,480	1,462	1,561
Mount Holyoke .....	743	752	748	674
Oberlin (college of arts and sciences only) ..	998	953	855	652
Purdue .....	1,611	1,682	1,717	1,359
Smith .....	1,618	1,609	1,566	1,067
Tufts (college and engineering) .....	433	428	434	375
Vassar .....	1,058	1,039	1,014	979
Wellesley .....	1,378	1,319	1,282	1,050
Wesleyan .....	365	343	322	305
Williams .....	541	528	487	443

—At Dartmouth 1,144 students are registered in the college, 43 in the engineering school, 41 in medicine, 34 in the Tuck school of commerce and administration, and 21 are graduate students. There were also 151 students enrolled in the summer school of this institution, of whom 47 returned in the fall, giving a grand total of 1,333 students. Dartmouth has just completed a new gymnasium building, while an administration building is being erected for the college offices only.—Haverford College is completing a new science hall, principally for chemistry, and has received a donation from an alumnus for a building for the Haverford Union. The college has also introduced a pension system, for which a fund of \$150,000 has been raised.—At Lafayette College 77 students are enrolled in the classical course, 135 in the Latin scientific, 45 in the general scientific, 47 in the chemical, 89 in the civil engineer-

ing, 55 in the electrical engineering, 34 in the mining engineering and 14 in the mechanical engineering course.—Lehigh University has 540 engineering students, 48 in the college, and 28 graduate students. The physical equipment of the university has been materially strengthened by the erection of two new laboratories—the Fritz engineering laboratory and the Eckley B. Coxe mining laboratory; the former is devoted to tests in strength of materials, cement and concrete, hydraulics and road materials, the latter to experimental ore-dressing. Both laboratories are equipped with the most modern machinery and apparatus. Four new four-year plans of study leading to the degree of bachelor of science are offered by the university in the department of arts and science, *viz.*, one in which the biological and chemical sciences predominate, one in which the geological sciences predominate, one in which the mathematical and physical sciences predominate, and one in business administration.—At the Massachusetts Institute of Technology German has been made a required subject for all first-year students with the exception of the architects, who are required to take French; previously all first-year students could choose between German and French. Of the 1,506 students enrolled at the institute this winter, 107 are in the school of architecture. There were also 239 students in attendance on the 1910 summer session, of whom 175 returned in the fall, giving a total enrollment for the year of 1,570.—At Mount Holyoke College a dormitory, accommodating about twenty-five persons, has been added during the summer.—The total fall registration of Oberlin College is 1,826, divided as follows: college of arts and sciences 998, theological seminary 65, conservatory of music 406, academy (preparatory) 315, drawing and painting (college and pre-

paratory) 42.—The students at Purdue University are distributed as follows: school of science 162, chemical engineering 80, civil engineering 334, electrical engineering 390, mechanical engineering 306, graduate students 30, agriculture 262, and pharmacy 74. The entrance requirements for the school of pharmacy have been raised to correspond to those of all the other departments of the university, namely, four years of preparation in a standard high school, the increase in requirements having led to a twenty-five per cent. decrease in enrollment. An increase of no less than forty per cent. was registered in the freshman class of the school of agriculture. There has also been an appreciable increase in the number of women students, due to growth in the department of household economics. A notable addition to the resources of the university consists of the erection of a new group of buildings for the department of shop practise and drawing, comprising some 70,000 square feet of floor space with modern equipment.—At Smith College it is the object of the authorities at present to keep the enrollment as near 1,600 as possible, this being done by limiting the size of the entering class.—The total enrollment of Tufts College consists of 1,141 students, divided as follows: college, 111 men and 84 women, engineering schools 238, medicine 388, graduate students 7, dentistry 303, and divinity 10.—At Wellesley College there are 1,290 regular undergraduate students, 57 special students and 31 graduate students. Two new buildings have been added to the equipment, namely, a library and a gymnasium (Mary Hemenway Hall).—Of the 365 students at Wesleyan, 9 are women and 7 are graduate students.—At Williams 9 of the students are candidates for the degree of master of arts. A new infirmary and a

new auditorium are in process of construction and a new dormitory will be commenced soon. This is the first year in which no "partial course" freshmen have been admitted, all those that entered being candidates for the degree of bachelor of arts.<sup>1</sup>

RUDOLF TOMBO, JR.

COLUMBIA UNIVERSITY

*SUMMARY OF THE FIFTH ANNUAL REPORT  
OF THE CARNEGIE FOUNDATION<sup>1</sup>*

THE fifth Annual Report of the President of the Carnegie Foundation covers the year ending September 30, 1910. The report is divided into two parts. Part I. pertains to the current business of the year; Part II. is a discussion of the Relation of the College and the Secondary School.

The report shows that the trustees had in hand at the end of the year funds amounting to \$11,114,056.86, consisting of the original gift of \$10,000,000 par value of five per cent. bonds and one million accumulated surplus. The income for the year was \$543,881.20. During the year 64 retiring allowances were granted, of which 46 were in accepted institutions and 18 in institutions not on the accepted list. During the year 23 pensioners died.

Among distinguished teachers who retired during the year were Professor Burt G. Wilder, of Cornell; Dean Van Amringe and Professor Chandler, of Columbia, both well advanced in years and in academic honors; Professor George L. Goodale, the famous botanist of Harvard; Professor Osborne, of the Massachusetts Institute of Technology, who has taught mathematics in that institution since its foundation; Chancellor MacCracken, of New York University; President Seelye, of Smith College, and Professor Calvin M. Woodward, of Washington University, St. Louis. These distinguished men average in age seventy-two years, and illustrate how well

<sup>1</sup> An abstract of this article appeared in the *Evening Post* (New York) of February 11.

<sup>1</sup> Press bulletin supplied by the foundation.

the vigor and influence of the scholar can be continued to a ripe maturity.

There were admitted to the accepted list during the year the University of California, the joint institutions of the State of Indiana—Indiana University and Purdue University—and Wesleyan University, the last named a college.

In the first part of the report the president of the foundation follows up the bulletin on medical education by a paper on the relation of the university to the medical school, in which he calls attention to the responsibility attaching to any college or university which undertakes medical education.

The second part of the report is a careful attempt to state the existing causes of friction between the secondary school and the college, and the loss of educational efficiency in the present methods of bringing pupils from the school to the college. The complaint of the college against the secondary school and the complaint of the secondary school against the college are set forth.

An extremely interesting part of the report is a statement of the observations of Oxford tutors upon the preparation of the Rhodes scholars. The strong points in the American boy's preparation are readily seen by these trained teachers, and the weaknesses which they find point directly to the superficiality and diffusion of the work done in the American secondary school and college.

The president of the foundation urges that this whole question be approached by secondary school men and college men in a spirit of cooperation. Neither the certificate method of admission nor the piecemeal examination method have, in his opinion, solved the problem. He urges that the college must find a solution which will test better than the certificate or the piecemeal examination the fundamental qualities of the student, and which will at the same time leave to the high school a larger measure of freedom. He recommends a combination of certificate and examinations, the latter of simple and elementary character, but calling for a high quality of performance.